

REMARKS/ARGUMENTS

Summary of Changes Made

The application was filed with 21 claims. A preliminary amendment canceled claim 21 and amended claims 3-20. Presently, claims 3 and 11 are canceled, their subject matter amended into claim 1. Claim 1 is otherwise amended for clarity, as are claims 13 and 14. Claims 17-20 are amended to convert "use" claims into "method" claims. New claims 22 and 23 are added to capture certain subject matter of claim 17. Accordingly, claims 1, 2, 4-10, 12-20, 22 and 23 (20 claims) remain pending in the application. No new matter has been added.

Claim Rejections – 35 U.S.C. 112, second paragraph

The Examiner has levied a rejection of all claims (1-20) as indefinite under 35 U.S.C. § 112, second paragraph. The Examiner contends that the formula $-NR^+R^2-$ is confusing, because it implies that nitrogen has five bonds. Claims 7 and 8 lack antecedent basis for elements (f) and (g). The Examiner also contends that it is unclear in claim 10 how amino or ammonium groups can be pendent on the polyorganosiloxane main chain when polysiloxanes Z1 and Z2 have only pendent R^1 groups not allowing for the presence of amino or ammonium groups.

The Examiner will note that claim 1 has been amended to remove one "R" group from the second formula in the definition of Q. Nitrogen in such amended formula no longer apparently has five bonds. This represents a correction of an error in the translation of the International Application, WO2004/046452, as can be seen from Claim 10 therein. Furthermore, the second proviso has been removed from the definition of component (b1), as it is now superfluous. The two remaining provisos have been labeled (i) and (ii) for added clarity. Still further, component (c) has been made mandatory, and has been limited to unpolymerized, organic, quaternary ammonium compounds. This limitation is found in original Claim 11. The subject matter of claim 3 has also been added to claim 1.

The Examiner contends that, in the definition of V^3 , it is not clear as to what the tri- or higher valence bonds are bonded, hence confusing the breadth of the claim. Applicants firmly believe that this does not cause any confusion to a skilled artisan. It is clear that V^3 , similar to tri- and tetravalent Q radicals, either serves to branch the main chain formed from Q and V units,

or, as explained in the new second proviso, serves to saturate tri- and tetravalent Q radicals within a linear main chain without formation of a branch, thereby forming cyclic structures in the main chain.

The function as a branch unit is clearly explained in the specification at page 39, lines 20-21: “[t]he polysiloxanes of the general formula (I) used as component b1) in accordance with the invention may also contain branch units V^3 .” The situation where V^3 is bound to tri- and tetravalent Q radicals within a linear main chain without formation of a branch, thereby forming cyclic structures in the main chain, is explained in detail on page 18, lines 17-23 of the specification.

The Examiner believes that the third proviso clause is confusing on its own. Since some of the trivalent Q radicals are fully bonded, such as -NR- and the heterocycle shown below it, The Examiner contends that is unclear how such units can serve to branch. Thus, the Examiner finds the reference to “the valencies which do not serve for bonding” to be confusing because there might not be such valencies. The Examiner similarly finds unclear what is meant by “within a linear main chain without formation of a branch,” because the V^3 radicals require the presence of an at least trivalent radical which will form branching.

The Examiner is invited to consider the following. It is clear that the original third proviso (now second) relates only to the tri- and tetravalent Q radicals and not to those radicals which are already fully bonded. It is also clear that a trivalent or tetravalent Q radical only needs two bonds for bonding in the main chain, which is linear. That is, the tri- and tetravalent Q radicals necessarily need to have at least one or two bonds for branching or binding to V^3 radicals. Further, the situation “within a linear main chain without formation of a branch” relates to the case where high valency Q radicals bond to high valency V^3 radicals, as noted above. Thereby, no branches are formed; instead, the result is only cyclic structures within a linear main chain.

Claim 1 has also been amended to clarify that compound b1) is at least one polyamino-polysiloxane and/or polyammonium-polysiloxane compound, and that the optional compound b2) is at least one amino-polysiloxane and/or ammonium-polysiloxane compound.

Applicants respectfully request that the Examiner reconsider the foregoing indefiniteness rejections based on the above reasoning.

The amendments to claim 1 to include elements (f) and (g) overcome the rejection relating to the lack of antecedent basis in claims 7 and 8 relating to those elements.

In claim 10, the Examiner finds it unclear how many amino and/or ammonium groups can be pendant on a polyorganosiloxane main chain when the polysiloxanes Z^2 and Z^1 only have pendant R^1 groups which do not allow for amino or ammonium groups.

Claim 10 refers to the amino- and/or ammonium polysiloxane compound b2) – and not to the polyamino- and/or polyammonium polysiloxane compound b1), having the formula (I). The difference between the two polysiloxane compounds is explained in detail in the specification at page 8, line 21 to page 9, line 1, and depicted in the formulae thereinbelow:

The component b) used in accordance with the invention is at least one polyamino- and/or polyammonium-polysiloxane compound b1) and/or at least one amino- and/or ammonium-polysiloxane compound b2). The polyamino- and/or polyammonium-polysiloxane compound b1) is a copolymer compound which has amino and/or ammonium repeat units and polysiloxane repeat units in the polymer main chain. The amino units contain secondary and/or tertiary nitrogen atoms (2 or 3 organic radicals on the uncharged nitrogen atom). The ammonium units contain secondary, tertiary and/or quaternary, positively charged nitrogen atoms (2, 3, or 4 organic radicals on the nitrogen). The amino and/or ammonium repeat units may also serve heterocyclic radicals bonded into the polymer chain via two nitrogen atoms.

In contrast, component b2) comprises polysiloxane compounds which contain amino and/or ammonium groups in the pendent groups of the polysiloxane main chain. In other words, the amino and/or ammonium groups are not present in the main chain composed of polysiloxane repeat units.

Component b2) contains polysiloxane compounds which, in turn, contain amino and/or ammonium groups in the pendant groups of the polysiloxane main chain. This is in contrast to component b1). In this regard, please see also the specification at page 43, line 3 to page 49 line 20, relating to component b2). The Examiner will note that b2) does not include R^1 , but instead contains R^{11} ("R-eleven"). Page 45 of the specification teaches that R^{11} includes pendant aminoalkyl groups. Applicants assert that the foregoing clarifies the situation with respect to claim 10.

Claims 13 and 14 are amended both to depend from claim 1 in light of the cancellation of claim 3, and to clarify which carrier type (liquid or solid) is present.

Applicants respectfully submit that the above amendments and clarifications overcome all rejections of claims 1, 2, 4-10, and 12-20 under Section 112 and request withdrawal of the rejection.

Claims 17-20 – Claim Rejections under 35 U.S.C. §§ 101 and 112

Claims 17-20 were rejected as indefinite as the claimed use of a formulation does not recite any positive active steps in the use. Claims 17-20 are also rejected under 35 U.S.C. § 101 as reciting non-statutory subject matter, because “use” claims are not recognized as proper claims under United States patent law.

The Examiner will note that claims 17-20 have been amended to method claims, each reciting at least one active step. New claims 22 and 23 have been added, covering portions of the subject matter of claim 17, and are styled as method claims.

Applicants respectfully submit that claims 17-20, as well as new claims 22 and 23, are clear and definite, and are directed to statutory subject matter, thereby overcoming the rejections over Sections 101 and 112.

Claim Rejections – 35 U.S.C. 102(b) – (Lange)

Claims 1-20 are rejected under 35 U.S.C. § 102(b) as anticipated by Lange, et al., WO02/10257, as interpreted by Lange et al., U.S. 7,217,777 (“Lange”). The Examiner contends that Lange discloses, with respect to claim 1, a polyammonium-polysiloxane compound having at least one unit of formula (I) in claim 1. The end of column 42 of Lange allegedly teaches formulations that meet (a) in claim 1 as well as the subject matter of claim 9. Polyquaternium-10 in the table in column 42 allegedly meets instant claim 12.

The Examiner will note that claims 3 and 11 are canceled thus rendering their rejection moot. The patentability of new claims 22 and 23 stems from the patentability of claim 1, demonstrated hereinbelow.

The Examiner will note that that claim 1 has been amended to limit the nitrogen-free polysiloxane compound to compounds having a high viscosity of 10,000 to 10,000,000 mPa.s. The disclosure of such viscosity range is found in the specification at page 6, lines 21-27. Lange is silent about such a viscosity, and cyclopentasiloxane has a much lower viscosity – below 10 mPa.s and dimethicone copolyols have a viscosity of less than 6000 mPa.s. This claimed viscosity level for the nitrogen-free polysiloxane compound (a) is critical, and patentably distinguishes the invention over Lange based on the following. As noted in the Examples, the inventive formulations are typically prepared by first mixing the silicone quats (component b1)

with the nitrogen-free polysiloxane compound (component a). The amino salt described at page 66, first paragraph, (component c), is then mixed and homogeneously distributed in this pre-mixture.

If a polydimethylsiloxane having low viscosity were to be used instead of one having high viscosity, it would not be possible to maintain the homogeneity of the mixture of polydimethylsiloxane (a), silicone quats (b) and amino salts (c). Instead, a phase separation would occur among components (a), (b), and (c). Such phase separation would then render it difficult or impossible to add and mix homogeneously a liquid carrier such as water to those formulations. The high viscosity of component (a) is thus critical. Applicants invite the Examiner to consider the foregoing in the hope that the novelty of the claimed invention relative to Lange will become apparent. If the Examiner is not convinced by such reasoning, Applicants respectfully request an opportunity to submit experimental evidence of this criticality (that the nitrogen free polysiloxane has high viscosity) prior to the issuance of a Final Office Action.

Claim Rejections – Non Statutory Double Patenting – (Sackel)

Claims 1-20 are rejected on the ground of non-statutory obviousness-type double patenting over claims 17 and 18 of U.S. Pat. No. 7,390,479 to Sackel, et al., ("Sackel"). The Examiner contends that the instant claims are not patentably distinct from claims 17 and 18 of Sackel, stating that claims 17-18 therein teach a cosmetic formulation and shampoo including branched polysiloxanes that meet the limitation of part (b) of instant claim 1. The Examiner admits that Sackel does not teach the addition of a nitrogen-free polysiloxane, but contends that it is known in the art to include nitrogen-free polysiloxanes (for example cyclic siloxanes or dimethicone copolyols) in cosmetic and shampoo formulations.

The Examiner will note that claims 3 and 11 are canceled thus rendering their rejection moot.

Applicants refer the Examiner to the reasoning and discussion relative to the Lange patent, above, as a basis for overcoming this obviousness-type double patenting rejection. As admitted by the Examiner, Sackel fails to teach the use of the nitrogen-free polysiloxane compound a). Moreover there is no suggestion in Sackel to use of a high viscosity nitrogen-free polysiloxane compound a), the high viscosity of which is critical to the practice of the present

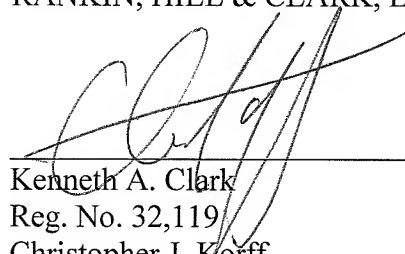
invention. Applicants respectfully request that the Examiner reconsider the non-statutory rejection.

CONCLUSION

In light of the foregoing, it is respectfully submitted that the present application, including claims 1, 2, 4-10, 12-20, 22 and 23, is in condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application. If there are any additional fees resulting from this communication, please charge the same to our Deposit Account No. 18-0160, our Order No. GEB-16075.

Respectfully submitted,

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